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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/873,892

06/04/2001

Ivan Jesus Fernandez Corbaton

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09/07/2004

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER

BURD, KEVIN MICHAEL

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 09/873,892	Applicant(s) CORBATON ET AL.	
	Examiner Kevin M. Burd	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-26 and 30-37 is/are rejected.
- 7) ☒ Claim(s) 8-10 and 27-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/01;9/01;12/02</u> . | 6) <input type="checkbox"/> Other: _____ |

Information Disclosure Statement

1. The information disclosure statements (IDSs) submitted on 6/4/2001; 9/10/2001 and 12/9/2002 are being considered by the examiner.

Drawings

2. The drawings were received on 9/26/2001. These drawings are acceptable

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-3, 14, 15, 20-22 and 30-32 are rejected under 35 U.S.C. 102(a) as being anticipated by Visotsky et al (US 6,175,588).

Regarding claims 1-3, 14, 15, 20-22 and 30-32, Visotsky discloses an apparatus and method for estimating a signal to noise ratio (SNR) of a wireless channel (column 5, lines 15-19). The channel comprises pilot and non-pilot components (column 16, lines 65-67). When pilot symbols (control signals) are received, the switch closes to permit adaptation of the equalizer in response to the pilot symbols. When data symbols are received, the switch opens to convey demodulated data from the receiver (column 17, lines 22-29). The equalizer coefficients are frozen in the interval between pilot symbols

(column 17, lines 8-13). The mean squared error is used to compute the SNR value (column 5, lines 15-19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 11-13, 16, 23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visotsky et al (US 6,175,588) in view of Strodtbeck et al (US 6,680,985).

Regarding claim 4, 11-13, 16, 23 and 33, Visotsky discloses an apparatus and method as stated above in paragraph 3. Visotsky does not disclose calculating a bias to estimate the SNR of the wireless channel. Strodtbeck discloses using a bias to adapt the equalizer shown in figure 1 (column 2, line 63 to column 3, line 3). This adaptation correctly sets a voltage bias (column 3, lines 18-30). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate Strodtbeck's method of using a bias eliminate errors and thereby increase the SNR in the apparatus and method of Visotsky. The adaptation will be accomplished sooner if the errors are eliminated.

5. Claims 5, 6, 24, 25, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visotsky et al (US 6,175,588) in view of Wells et al (US 6,310,915).

Regarding claims 5, 24 and 34, Visotsky discloses an apparatus and method as stated above in paragraph 3. Visotsky does not disclose decoding and re-encoding the received data prior to estimating the SNR. Wells states it is desired to re-encode a previously encoded signal. For example, it is desirable to re-encode the signal in a fashion other than it was originally encoded to meet network congestion/bandwidth availability constraints to provide the signal to different users with varying decoder capability (column 3, lines 41-47). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the decoding and re-encoding of Wells into the method and apparatus of Visotsky for the reasons stated above.

Regarding claims 6, 25 and 35, Visotsky discloses the mean squared error is used to compute the SNR value (column 5, lines 15-19).

6. Claims 7, 26 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visotsky et al (US 6,175,588) in view of Wells et al (US 6,310,915) further in view of Strodbeck et al (US 6,680,985).

Regarding claims 7, 26 and 36, the combination of Visotsky and Wells discloses a method and apparatus stated above in paragraph 5. The combination does not disclose calculating a bias to estimate the SNR of the wireless channel. Strodbeck discloses using a bias to adapt the equalizer shown in figure 1 (column 2, line 63 to column 3, line 3). This adaptation correctly sets a voltage bias (column 3, lines 18-30). It

would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate Strodtbeck's method of using a bias eliminate errors and thereby increase the SNR in the apparatus and method of the combination of Visotsky and Wells. The adaptation will be accomplished sooner if the errors are eliminated.

7. Claims 17, 18 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Visotsky et al (US 6,175,588) in view of Marchetto et al (US 5,914,959).

Regarding claims 17, 18 and 37, Visotsky discloses an apparatus and method for estimating a signal to noise ratio (SNR) of a wireless channel (column 5, lines 15-19). The channel comprises pilot and non-pilot components (column 16, lines 65-67). When pilot symbols (control signals) are received, the switch closes to permit adaptation of the equalizer in response to the pilot symbols. When data symbols are received, the switch opens to convey demodulated data from the receiver (column 17, lines 22-29). The equalizer coefficients are frozen in the interval between pilot symbols (column 17, lines 8-13). The mean squared error is used to compute the SNR value (column 5, lines 15-19). Visotsky does not disclose selecting the rate for the transmission of data using the SNR. Marchetto discloses a scheme that reduces the data transmission rate as the SNR becomes poor. This ensures that the BER remains high (column 1, lines 46-47). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the selection of the transmission rate using the SNR of Marchetto into the apparatus and method of Visotsky.

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8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Visotsky et al (US 6,175,588) in view of Marchetto et al (US 5,914,959) further in view of Strodtbeck et al (US 6,680,985).

Regarding claim 19, the combination of Visotsky and Marchetto discloses the apparatus and method stated above in paragraph 7. The combination does not disclose calculating a bias to estimate the SNR of the wireless channel. Strodtbeck discloses using a bias to adapt the equalizer shown in figure 1 (column 2, line 63 to column 3, line 3). This adaptation correctly sets a voltage bias (column 3, lines 18-30). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate Strodtbeck's method of using a bias eliminate errors and thereby increase the SNR in the apparatus and method of the combination of Visotsky and Marchetto. The adaptation will be accomplished sooner if the errors are eliminated.

Allowable Subject Matter

9. Claims 8-10 and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Thursday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Burd
8/26/2004

KEVIN BURD
PATENT EXAMINER
Kevin M. Burd